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Mysterious Caves

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Mysterious Caves



Written by Terry Miller Shannon

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On the Internet, use *www.google.com* to find out more about topics presented in this book. Use terms from the text, or try searching for some glossary or index words.

Some searches to try: *spelunking*, *famous caves*, *stalagmites*, or *stalactites*.



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Level V Leveled Reader
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Learning Page
1630 E. River Road #121
Tucson, AZ 85718

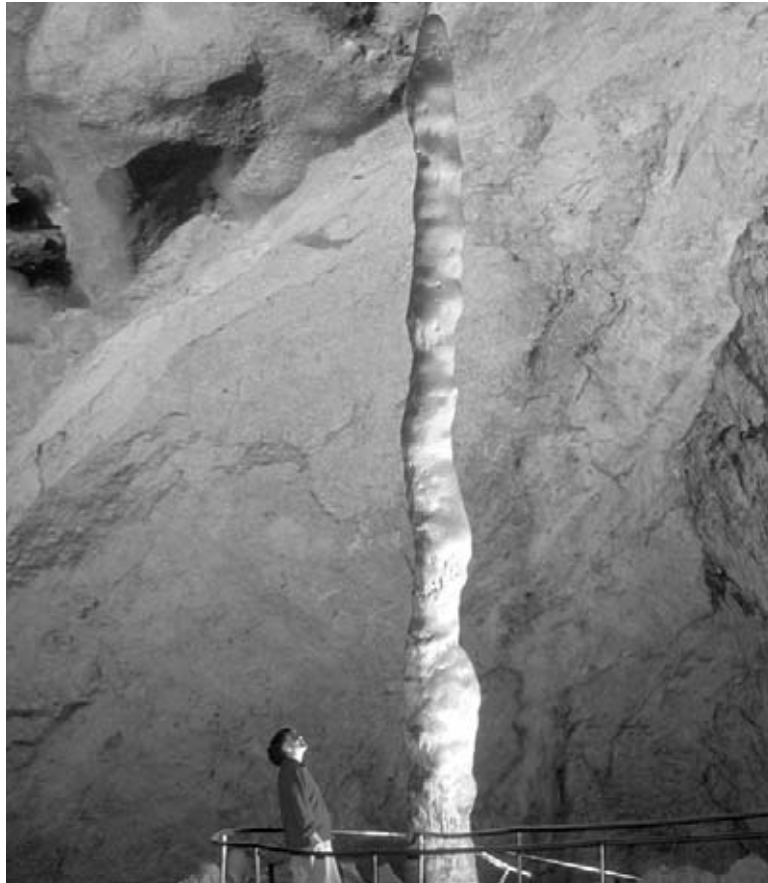
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Correlation

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Glossary

cave pearl	cave formation formed when layers of limestone build up around a grain of sand (p. 14)
column	cave formation formed when the gap between a stalactite and stalagmite closes (p. 12)
draperies	cave formations shaped into thin sheets and hanging from cave ceilings (p. 13)
erosional caves	formed by wind and water, slowly wearing away rock (p. 9)
helictite	cave structures that are twisted, spiraling, or curly (p. 14)
ice caves	formed mostly in glaciers (p. 10)
lava tube caves	formed from a lava river when the surface cools and hardens, leaving a tube beneath when the lava flow stops (p. 8)
limestone caves	formed as water eats through rock, leaving hollows (p. 7)
sea caves	formed by ocean waves wearing away rocks (p. 10)
soda straw	long, hollow tubes that form in limestone caves (p. 14)
spelunkers	people who explore caves (p. 17)
stalactite	cave formation hanging from the ceiling like a rock icicle (p. 13)
stalagmite	cave formation on a cave floor, similar to an upside down rock icicle (p. 13)



Carlsbad Caverns' Witches Finger, a stalagmite

Conclusion

The world of caves is fascinating. Where else on Earth can you find unexplored land, discover otherworldly formations, and see artwork from thousands and thousands of years ago? As long as we treat them respectfully, we can continue to experience the wonder of caves indefinitely.



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Above: Inside Temple of the Sun in Carlsbad Caverns.
Inset: A caver crawls through a tight space.

What Are Caves?

A cave is any natural hollow space. Usually when people talk about caves, or caverns, they mean there's a hole big enough for someone to use as a doorway into the cave. Usually, too, there's an area in the hollow that sunlight never reaches. Most caves are thousands or millions of years old.

Caves are found underwater, underground, and aboveground. A cave can be tiny, or it can be enormous, extending for many miles. Caves are found in every state in the United States, and in many other countries.



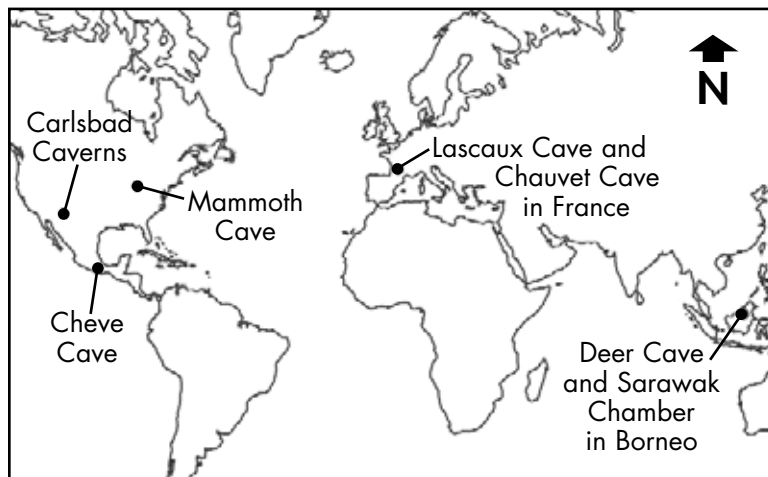
Carlsbad Caverns' Big Room

The United States claims some famous caves, too. Mammoth Cave in Kentucky contains more than 300 miles (482.08 km) of known passageways, making it the largest known cave system in the world. Carlsbad Caverns in New Mexico is a national monument with more than 80 known caves in the system. Carlsbad's magnificent Big Room is the seventh largest known cave in the world. It measures 1,800 feet (548.64 meters) long, as much as 1,100 feet (335.28 m) wide, and 255 feet (77.72 m) deep.

Famous Caves

There are caves throughout the world known for one or more outstanding features. One of the most renowned caves is the Chauvet Cave in France. It was discovered in 1994, and contains more than 300 of the world's oldest paintings—approximately 30,000 years old. The paintings include horses, lions, bears, and rhinoceroses.

Mexico's Cheve Cave is famous for being one of the deepest cave systems in the world. The deepest tunnels may be more than 2,000 meters (6,500 feet) below the surface. The world's largest known natural cave chamber is Sarawak Chamber in Asia's Sarawak, Borneo. The world's largest known cave passage, Deer Cave, is also located in the network of caves in Sarawak, Borneo.

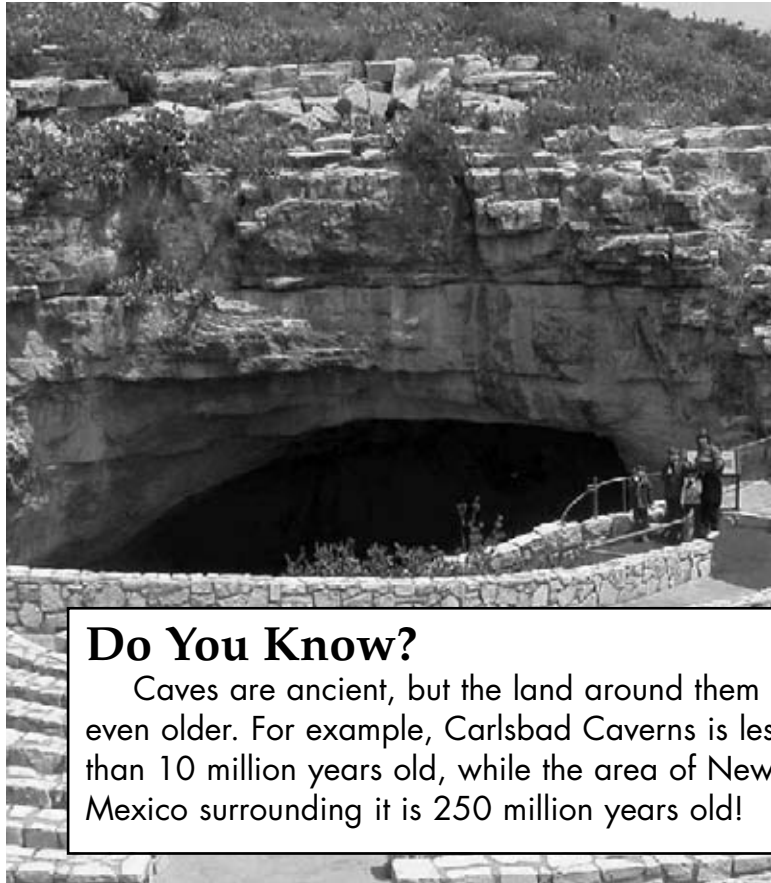


People are fascinated with caves. Caves can be magnificently gorgeous, filled with amazing formations and unusual animals. Adventurous people are lured by the challenge and excitement of seeing places no one may have seen before. Some people even live in caves. Explorers have found clues that show people used caves as homes as long as 30,000 years ago.

In this book, you will learn about the different types of caves and how they form, what formations can be found in a cave, what creatures live within caves, and where some famous caves are found.



Cavers climb walls in Carlsbad Caverns.



Do You Know?

Caves are ancient, but the land around them is even older. For example, Carlsbad Caverns is less than 10 million years old, while the area of New Mexico surrounding it is 250 million years old!

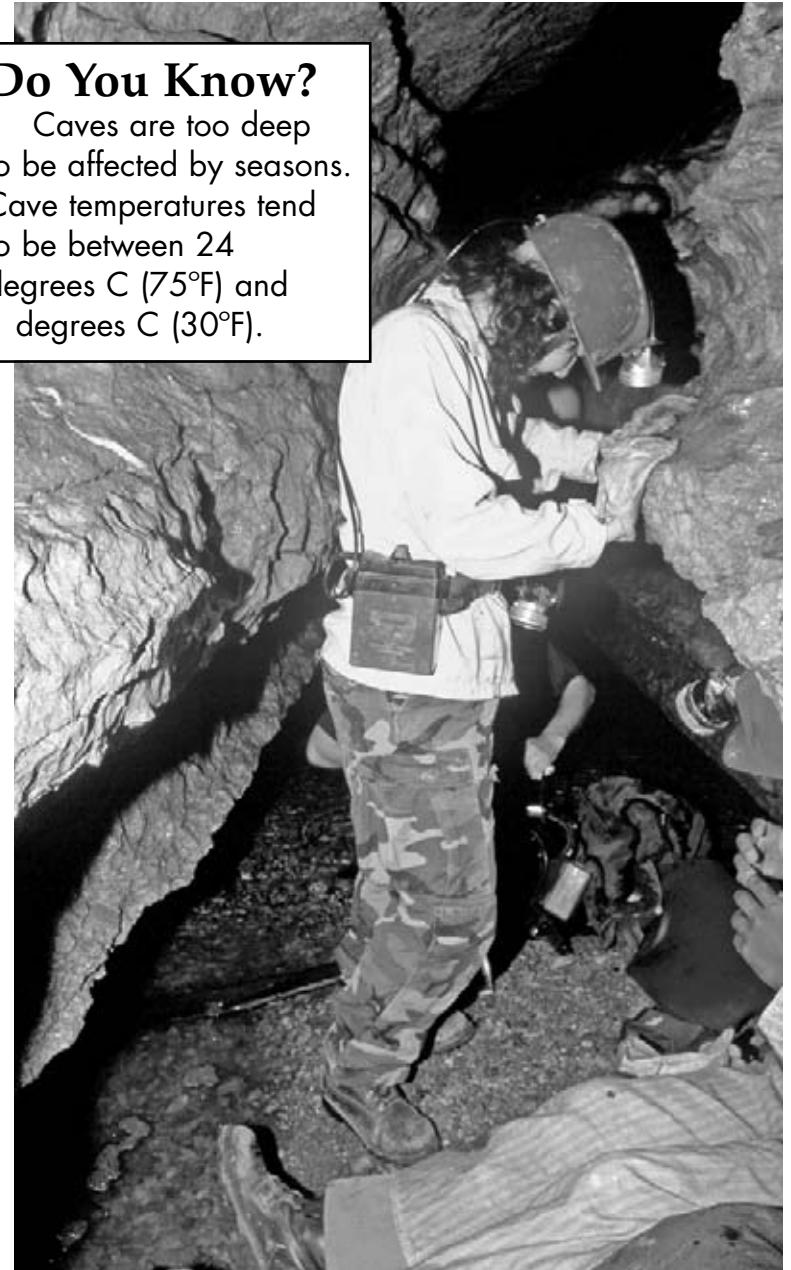
Carlsbad Caverns' main entrance

Where and How Caves Form

Caves form in three places: underground, underwater, and aboveground. The way caves form differs according to the type of cave. Nature uses basic tools such as wind and water to shape the earth. All caves form slowly over a very long period of time.

Do You Know?

Caves are too deep to be affected by seasons. Cave temperatures tend to be between 24 degrees C (75°F) and 1 degrees C (30°F).



Helmet, light, backup light, gloves, and boots are necessary equipment for cavers.

A cave is exciting and exotic, and it can definitely be dangerous. So if you plan to visit a cave, take a guided tour to avoid getting hurt. The guide can explain the many wonders to be found inside a cave, and safely get you in and out. They can keep you from damaging the cave.

A cave has taken millions of years to form and is full of delicate formations. A visitor can damage it without thinking. Thoughtless cave guests have broken off stalactite tips as souvenirs, destroying in a second something that may have taken 40,000 years to form.

People have also thrown coins in underground pools, polluting them, or left trash in caves. Caves lie so close to natural water reservoirs that when we pollute caves, we can also pollute drinking water. When you visit a cave, you should leave a cave exactly as you found it.

Experienced cave explorers equip themselves with helmets, flashlights, warm clothing, and knee pads. They may descend into the cave on a rope. As the spelunkers go deeper, their eyes must adjust to the darkness. They may have to wriggle through a tiny tunnel. In the cave, they hear water drip-drip-dripping, but no other sound. The only light is the glow of their flashlights.

Underground Caves

Long ago, shallow seas once covered parts of the Earth that are now land. Billions of tiny organisms with shells lived in these seas. As the organisms died and sank to the bottom, their shells piled up on the sea floor. Over many years the shells formed layers of rock called limestone. Forces deep below the seas pushed the limestone layers upward, eventually above the seas. Then rainwater seeped into the limestone and mixed with chemicals from decaying plants to form a weak acid. The acid seeped into cracks in the limestone. The acid dissolved, or ate away, the limestone, enlarging the cracks until a hollow was formed—a **limestone cave**. How long does it take for the acid to eat away enough limestone to make a cave? It can take well over a million years.



Inside a limestone cave



Lava tube caves such this one in Hawaii are the largest in the world.

In areas where a volcano has erupted, lava (liquid rock) flows like a stream of hot, thick liquid. The top of the stream cools and hardens to form a roof of rock, while the lava beneath continues to flow. After the eruption is over, the lava below the rock roof drains away leaving a tube-shaped cave underneath. These are called



lava tube caves. Lava tube caves sometimes form a maze of tunnels with branches heading off in many directions.

Lava tubes can be found around Mt. St. Helens in Washington state.

Exploring Caves

People who explore caves are called **spelunkers**. Why do spelunkers go into caves? Some do it for adventure and the physical challenge of climbing down ropes, crawling through tiny tunnels, and exploring deeper regions of the Earth. Other spelunkers like discovering places possibly seen by no one else on Earth. Scientists enter caves to learn more about the Earth.



Do You Know?

In 1940, four boys accidentally discovered one of the most famous **art caves**, France's Lascaux Cave. They squeezed into a small hole, entering a large cavern with beautiful paintings of deer and bulls. Luckily, the boys were not hurt, but entering a cave without an experienced cave explorer or guide is a dangerous idea. Later, one of the boys became the cave's main guide.

Many scientists divide the animals living inside caves into three groups: the ones who never leave the cave, the ones who live part-time in the cave, and animals who visit caves. The thousands of types of animals who never leave caves can't survive outside them. These animals have adapted to survive in the dark. They include some kinds of millipedes, cave spiders,



Blind crawfish have no need for sight inside dark caves.

crickets, beetles, spiders, centipedes, crawfish, salamanders, and fish. They may be blind and may not have eyes. They are often colorless.

Animals that live both inside and outside caves can survive in either place. Examples of these include some beetles, land crayfish, millipedes, centipedes, and some salamanders.

Other animals visit caves for shelter, to rest, or to hunt for food, but spend most of their time outside the cave. This group includes bats, bears, foxes, pack rats, snakes, raccoons, moths, groundhogs, vultures, and crickets.

Underwater Caves

When the Ice Age ended around 40,000 years ago, the sheets of ice covering most of North America and Europe melted causing the water level of the oceans to rise, flooding caves beneath hundreds of feet of water. Some underwater caves didn't start above ground, and have always been filled with water. They formed when the weight of the layers of limestone created cracks that became filled with water. Over time the water slowly wore away more of the rock, forming caves.



Underwater cave

Aboveground Caves

Water and wind move through cracks in rocks aboveground. Ever so slowly, the wind and water, which carry tiny grains of sand, grind away rock and form **erosional caves**. Erosional caves are found in most kinds of rock, but form best in softer rock.



Ice cave

The most common **ice caves** form in mountain glaciers as the glaciers slowly creep down the mountainside. Warmer water on the glacier's surface

that has been heated by the sun seeps through cracks in the glacier. The warmer water melts ice deep in the glacier and causes caves to form.

Sea caves form wherever ocean waves crash against cliffs. In the United States, sea caves are plentiful in the Pacific Coast states of Washington, Oregon, and California, and also the Na Pali coast of the Hawaiian island of Kauai.



Sea cave



Natural caves and cliffs in New Mexico became homes to Ancient Puebloans.

Cave Inhabitants

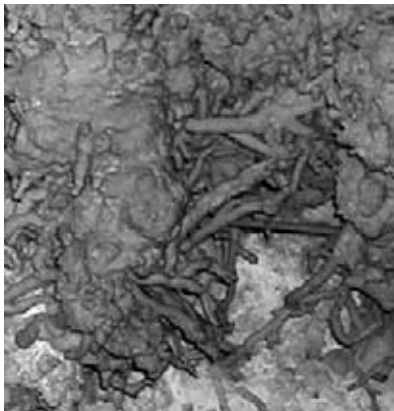
Creatures, small and large, have made their homes in caves for millions of years. At one time, humans found the enclosed space of a cave was a good place to live. Today, some people still call caves home. In Andalusia, Spain, hundreds of people live in caves, while in northern China there are millions of human cave dwellers. Other countries where people live in caves include Turkey, North Africa, and France.



Soda straws

A **soda straw** is another type of formation found in limestone caves. Like the straw you use to drink a soda, these structures are long and hollow.

A twisty, twirly type of cave formation is called a **helictite**.



Helictites

A rare formation is called a **cave pearl**. A pearl may start as a grain of sand that is covered, layer by layer with limestone as the water that contains the mineral dries around the grain of sand. They can be less than an inch in size or more than several inches in diameter.

It takes a very long time to build a formation, drop by drop—many thousands of years.



Cave pearls

Inside Caves

Since limestone caves are the most common type of caves, we'll take a closer look inside them. Limestone caves are divided into three main parts: entrances, twilight zones, and dark zones.

Entrances may be large or small. They can be a doorway into a mountain, a hole in the ground, or a crack in a boulder. Trees and shrubs hide entrances to some caves.

The twilight zone describes any part of the cave into which some sunlight seeps. If you're inside a cave and can see without a flashlight or a lantern, you're in the twilight zone. This zone is usually cool and damp; and you can find animals and bugs living there.



Twilight zones can be big or small

The third cave area is known as the dark zone. As you might guess from the name, there is no light in the dark zone. No plants grow there, but some animals and mold have adapted to living in the dark. It is very damp and cool. Water drips constantly through the cracks from the ground above.



Cave explorers find amazing and beautiful formations inside caves. These formations hang from the ceiling, rise from the floor, and decorate the walls. They are formed when water drips through the cracks of the rocks above the cave.

Many people are familiar with **stalactites** and **stalagmites**. These form when limestone dissolves in water that drips from the cave ceiling to the floor. As the water evaporates, the dissolved limestone builds up, bit by bit, creating stalactites on the ceiling and stalagmites on the floor.

A stalactite, which looks something like a rock icicle, grows only about 2 millimeters (about 0.08 inches) a year. Stalagmites, which look like upside down icicles, grow at the same speed as stalactites and are often more than 15 meters (50 feet) high and 10 meters (33 feet) wide at their base. They can have rounded, flat, or bowl-shaped tops. Sometimes a stalactite and a stalagmite will join to form a **column**.

Helpful Hint

If you think of the *c* as standing for *ceiling*, it will help you remember that stalactites hang from the top of the cave. If you think of the *g* as standing for *ground*, it will help you remember that stalagmites point up from the floor of the cave.



Other cave formations are created when water evaporates and leaves behind minerals. When water drops slide down the walls, each leaves a bit of limestone behind as the water evaporates. This limestone forms thin sheets that hang from cave ceilings. These are called **draperies** and can become more than 3 meters (10 feet) long. Some draperies are so thin they let light pass through. Draperies are sometimes different colors because minerals from the ground above may add color to water seeping into the cave below.

